

Product Information

VESTAKEEP® 5000 G

HIGH VISCOSITY, UNREINFORCED POLYETHER ETHER KETONE



VESTAKEEP® 5000 G is a high viscosity, unreinforced polyether ether ketone for injection molding and extrusion.

The semi-crystalline polymer features superior, thermal and chemical resistance. Parts made from VESTAKEEP® 5000 G are of low flammability.

VESTAKEEP® 5000 G can be processed by common machines for thermoplastics. We recommend a melt temperature between 370°C and 380°C during the injection molding process. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C.

VESTAKEEP® 5000 G is supplied as granules in 25 kg boxes with moisture-proof polyethylene liners.

Inside the original and undamaged packaging, the product has a shelf life of at least 2 years when stored in dry rooms at temperatures not exceeding 30°C.

Pigmentation may affect values.

Key Features

Industrial Sector

Automotive and Mobility, Industry and Engineering, Energy, Oil and Gas

Resistance to

Heat (thermal stability), Fire / burn

Processing

Injection molding, Extrusion

Additives

Unfilled

Delivery form

Pellets, Granules

Mechanical properties ISO

Tensile modulus

dry

3500

Unit

MPa

Test Standard

ISO 527

Tensile strength

95

MPa

ISO 527

Yield stress	95	MPa	ISO 527
Yield strain	5	%	ISO 527
Stress at break	85	MPa	ISO 527
Nominal strain at break, tB	35	%	ISO 527
Poisson's ratio, 23°C	0.41	-	ISO 527
Poisson's ratio, var. temp.	0.47	-	ISO 527
Temperature	200	°C	ISO 527
Charpy impact strength, +23°C	N	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	9	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-
Charpy notched impact strength, -30°C	8	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-

Mechanical properties ASTM	dry	Unit	Test Standard
Tensile Modulus, var. test speed	4100	MPa	ASTM D 638
Yield stress, var. test speed	100	MPa	ASTM D 638
Yield strain, var. test speed	6.5	%	ASTM D 638
Nominal strain at break, var. test speed	70	%	ASTM D 638
tensile modulus, annealed	4102.37	MPa	ASTM D 638
Yield strain, 23°C, annealed	6.5	%	ASTM D 638
Yield stress, 23°C, annealed	100	MPa	ASTM D 638
Nominal strain at break, 23°C, annealed	46	%	ASTM D 638
Flexural Strength	179	MPa	ASTM D 790
Flexural Modulus, 23°C, annealed	3700	MPa	ASTM D 790
Flexural stress at 5% fiber strain, 23°C, annealed	165	MPa	ASTM D 790

Thermal properties	dry	Unit	Test Standard
Melting temperature	340	°C	ISO 11357-1/-3
Glass transition temperature, DSC	152	°C	ISO 11357-1/-2
Temp. of deflection under load A, 1.80 MPa	150	°C	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	205	°C	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	335	°C	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	305	°C	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	60	E-6/K	ISO 11359-1/-2
Melting Temperature	340	°C	ASTM D 3418

Physical properties	dry	Unit	Test Standard
Density	1300	kg/m ³	ISO 1183
Water absorption	0.5	%	Sim. to ISO 62
Humidity absorption	0.12	%	Sim. to ISO 62
Density	1300	kg/m ³	ASTM D 792

Burning Behav.	dry	Unit	Test Standard
Burnin behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	3.2	mm	-
Oxygen index	36	%	ISO 4589-1/-2
Limiting Oxygen Index	36	%	ASTM D 2863
Glow Wire Flammability Index (GWFI)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (GWIT)	850	°C	IEC 60695-2-13

Electrical properties	dry	Unit	Test Standard
Volume resistivity, V	>1E13	Ohm*m	IEC 62631-3-1
Surface resistance, RSD	1E14	Ohm	IEC 62631-3-2
Relative permittivity, 1MHz	2.8	-	IEC 62631-2-1
Dielectric strength, AC, S20/S20, t. 1 mm	32.9	kV/mm	IEC 60243-1

Dielectric strength, AC, S20/P50	16	kV/mm	Sim. to IEC 60243-1
CTI, test solution A, 50 drops value	200	-	IEC 60112
Assessment of the insulation group	III a	-	DIN EN 60664-1

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	7	cm ³ /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-
Molding shrinkage, parallel	0.9	%	ISO 294-4, 2577
Molding shrinkage, normal	1.1	%	ISO 294-4, 2577
Mold temperature	180	°C	-
Melt temperature	380	°C	-

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	380	°C	ISO 294
Injection Molding, mold temperature	180	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Characteristics

Applications

Encapsulation, Tube and hose

Color

Natural color

Special Characteristics

Semi-crystalline, High viscosity

Chemical Resistance

General chemical resistance